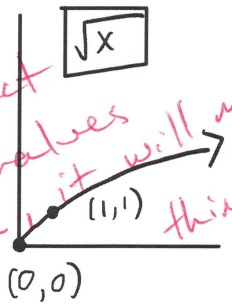
Jade Guenigault
writing project #2
Math 1340

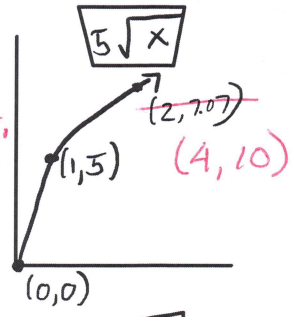
① $5\sqrt{3x-21}-2 = 5\sqrt{3(x-7)}-2$

① $\sqrt{x}$



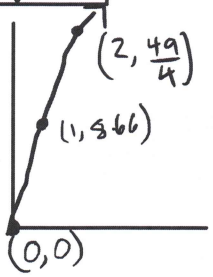
Use perfect square values of x it will make a lot things easier.

② $5\sqrt{x}$

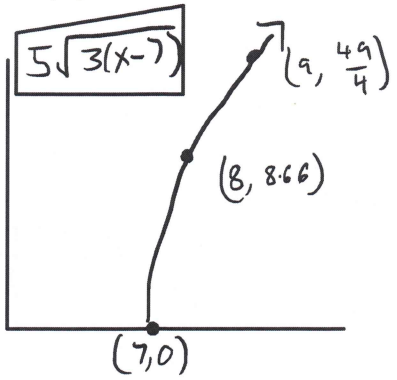


30/50

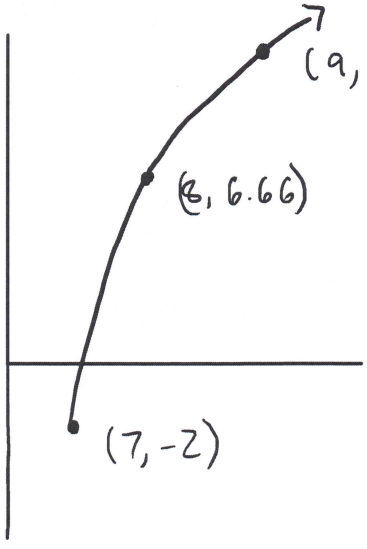
③ $5\sqrt{3x}$



④ $5\sqrt{3(x-7)}$



⑤



$g(x) = 5\sqrt{3x-21}-2$

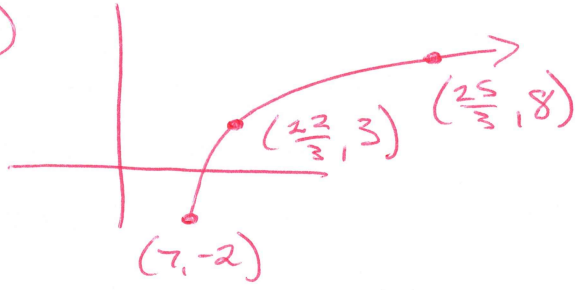
shifted right 7 units

down 2 units

stretched vertically

Ends up being...

⑤

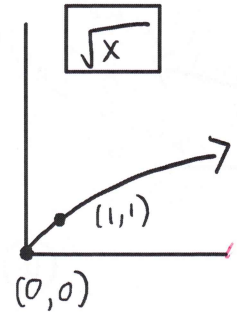


+2

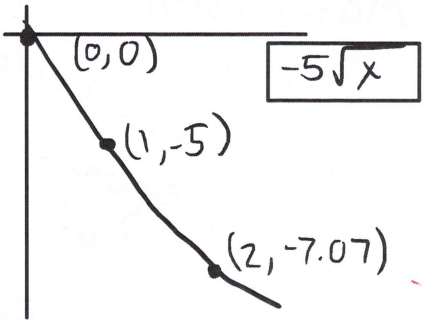
Jade Guenigault
writing project #2
Math 1340

② $g(x) = -5\sqrt{3x - 21} + 2 =$
$-5\sqrt{3(x - 7)} + 2$

① $\sqrt{x}$



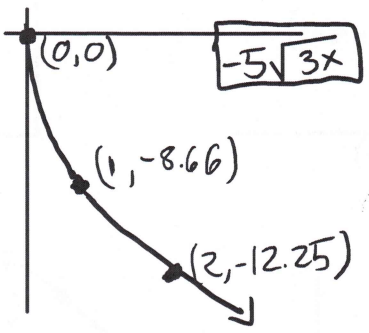
② $-5\sqrt{x}$



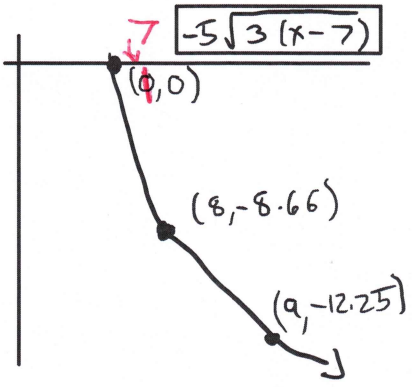
If you keep to x's that are perfect squares ie: 1, 4, 9 ... so on it is a lot easier to get exact y's w/o a calculator! ☺

ie: start w x = 0, 1, 4

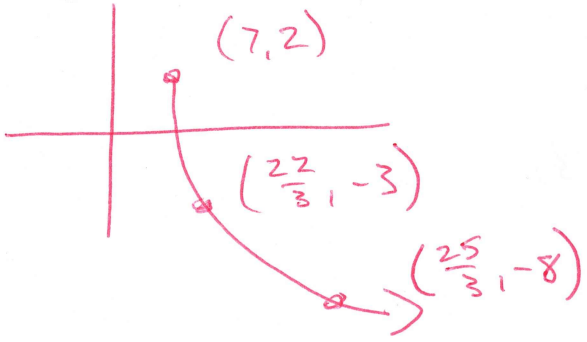
③ $-5\sqrt{3x}$

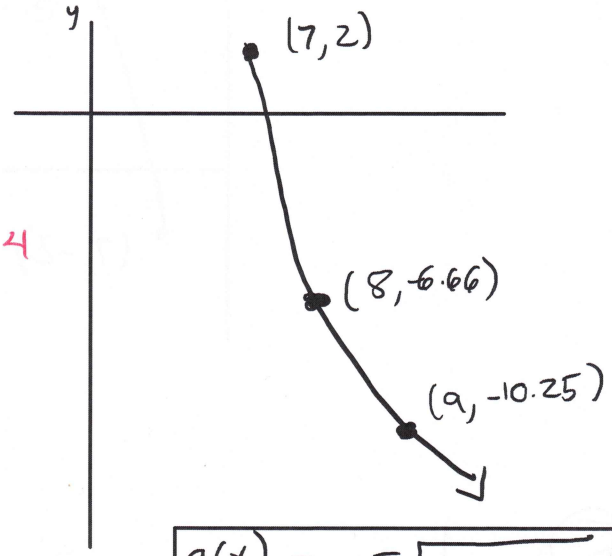


④ $-5\sqrt{3(x-7)}$



End solu:





$g(x) = -5\sqrt{3x-21} + 2$

shifted right 7 units
shifted up 2 units
reflected over the x axis
stretched vertically

4.5

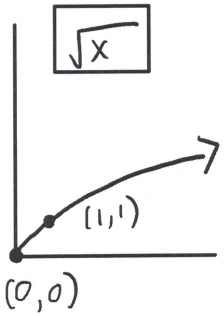
Jade Guenigault
writing project #2
Math 1340

③ $g(x) = 5\sqrt{-3x-21} - 11 =$

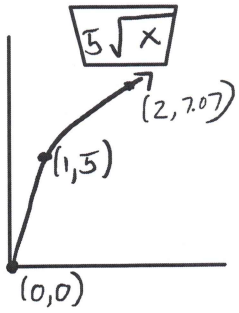
$5\sqrt{-3(x-7)} - 11$

$-3(x+7)$

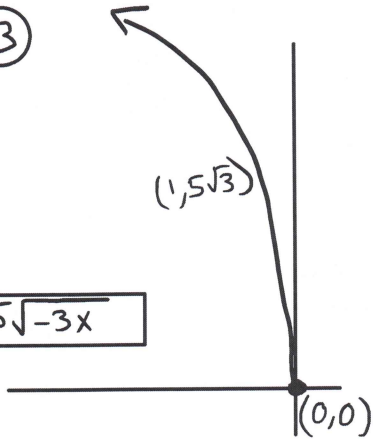
① $\sqrt{x}$



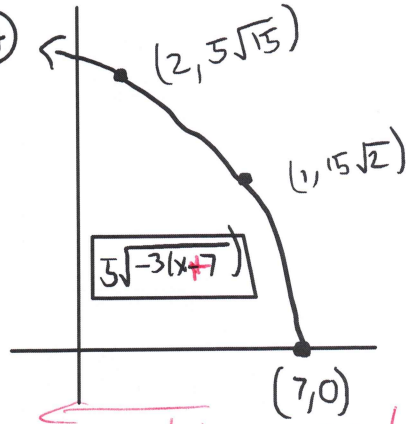
② $5\sqrt{x}$



③ $5\sqrt{-3x}$

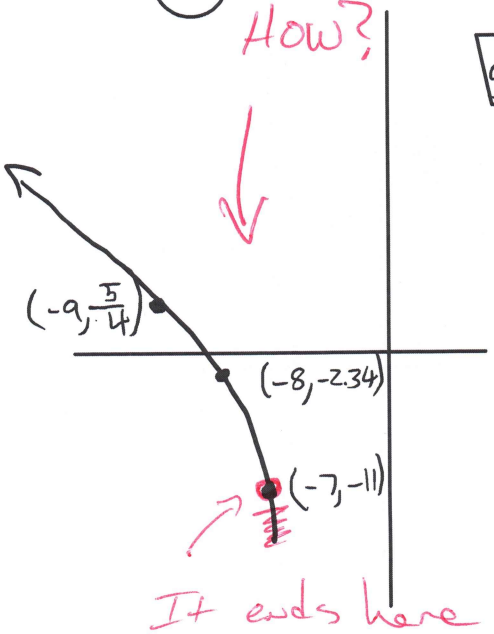


④ $5\sqrt{-3(x+7)}$



shift Left!

⑤ How?



It ends here

$g(x) = 5\sqrt{-3x-21} - 11$

left 7 units

down 11 units

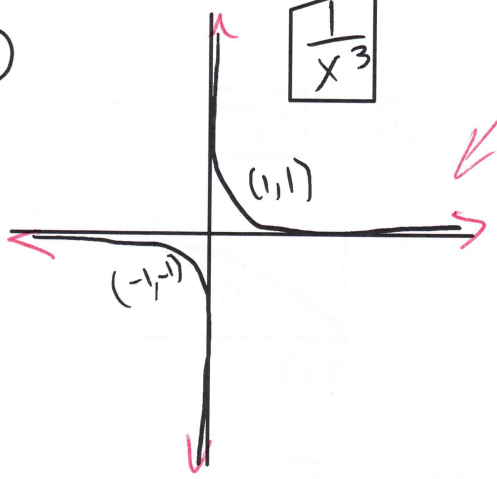
vertically stretched

+3.5

Jade Guenigault
writing project #2
Math 1340

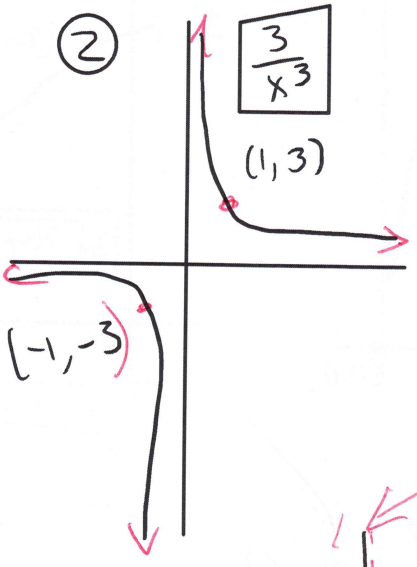
④ $g(x) = \frac{3}{(-2x+8)^3} + 5$

① $\frac{1}{x^3}$

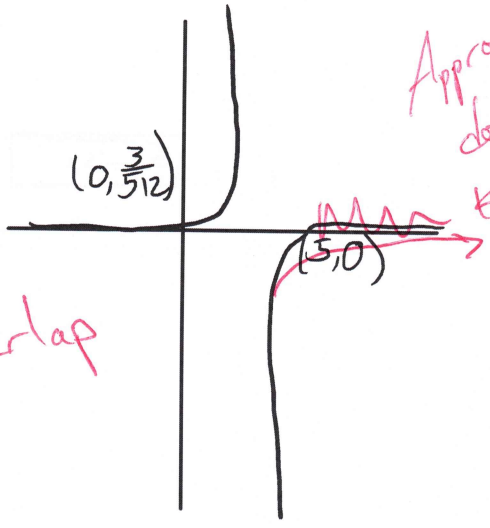


Arrows show that it keeps going.

② $\frac{3}{x^3}$

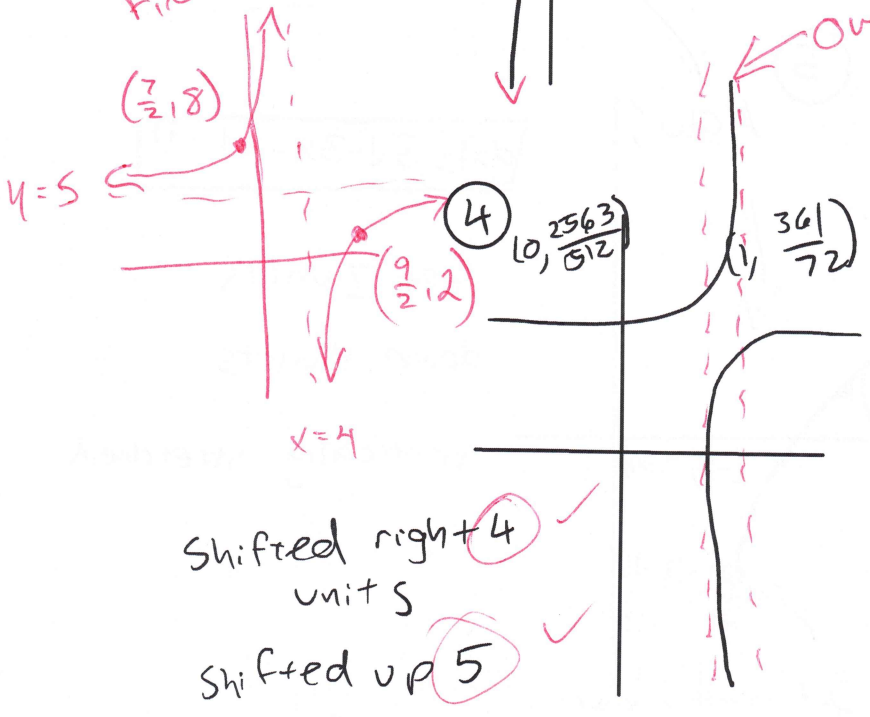


③ $\frac{3}{(-2x+8)^3}$



Approaches but does not cross

Final Soln



overlap

$g(x) = \frac{3}{(-2x+8)^3} + 5$

Shifted right 4 units ✓

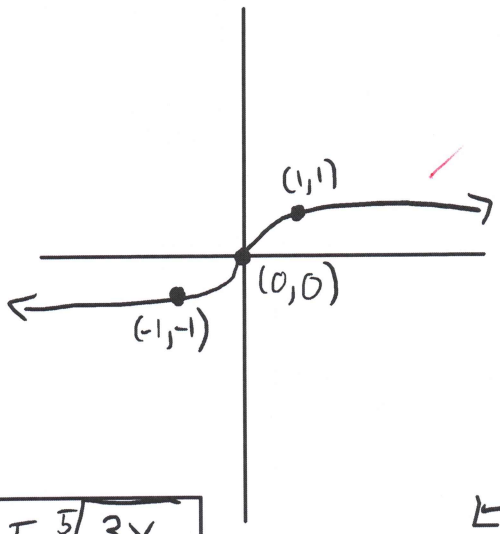
Shifted up 5 ✓

vertical stretch

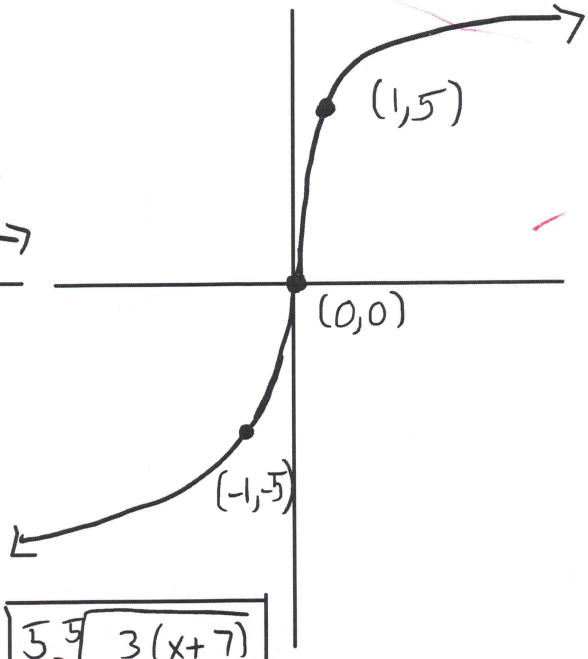
Jade Guenigault
writing project #2
Math 1340

⑤ $g(x) = 5\sqrt[5]{3x+21} - 6 = 5\sqrt[5]{3(x+7)} - 6$

① $5\sqrt[5]{x}$

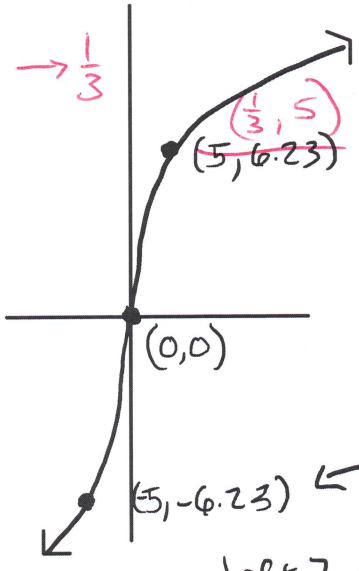


② $5\sqrt[5]{x}$

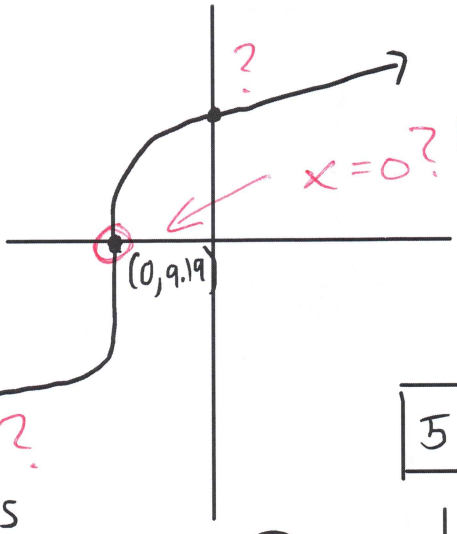


③ $5\sqrt[5]{3x}$

$3x \Rightarrow 1 \rightarrow \frac{1}{3}$



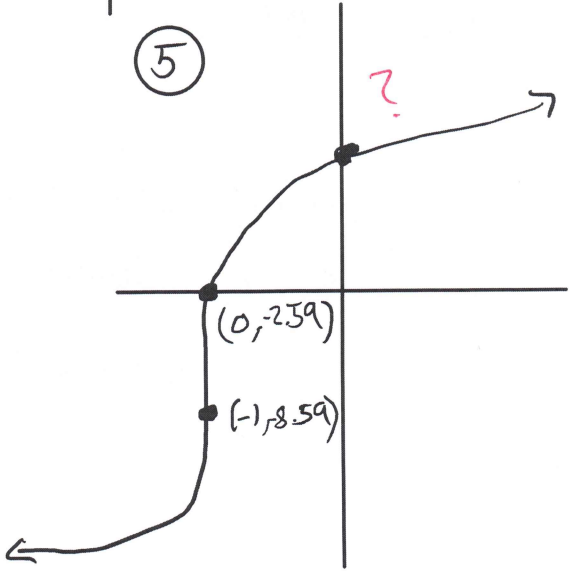
④ $5\sqrt[5]{3(x+7)}$



left 7 units
down 6 units
stretched vertically

$5\sqrt[5]{3x+21} - 6$

⑤



$5\sqrt[5]{18} - 6$

$5\sqrt[5]{15} - 6$

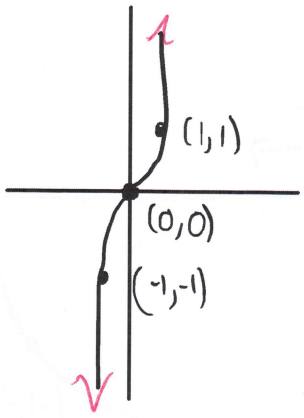
$5\sqrt[5]{12} - 6$

+2.5

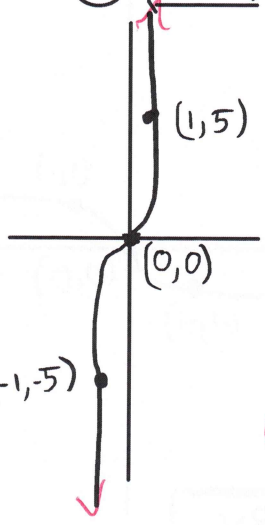
Jade Guenigault
-writing project #2
Math 1340

⑥ $5(3x+21)^5-6$

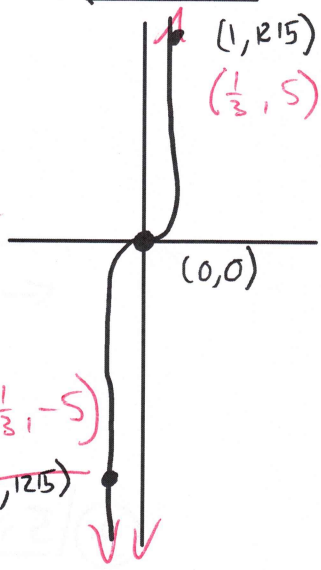
① x^5



② $5x^5$

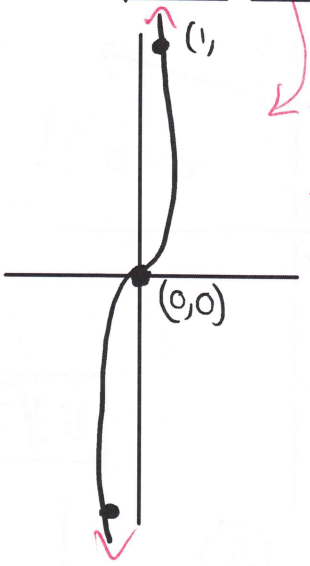


③ $5(3x)^5$



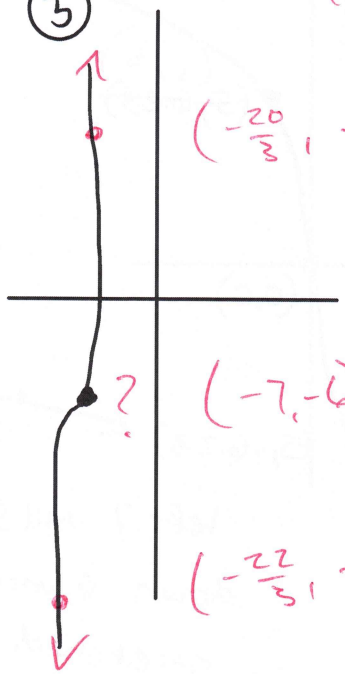
Formula?

④ $5(3(x+7))^5$



Shift Left

⑤



shifted left 7.023units

Shifted down 6units

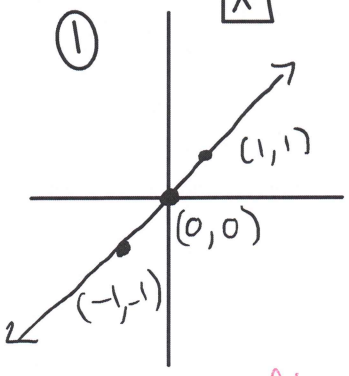
stretched vertically

+2.5

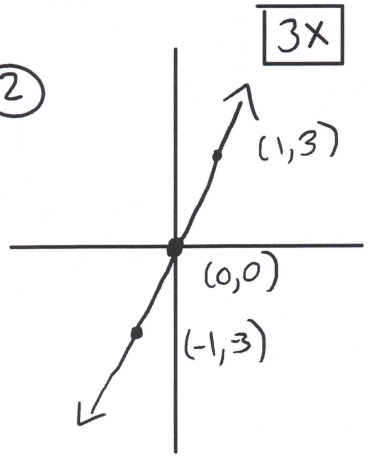
Jade Guenigault
writing project #2
Math 1340

⑦ $g(x) = 3(x+5)-7$

① x

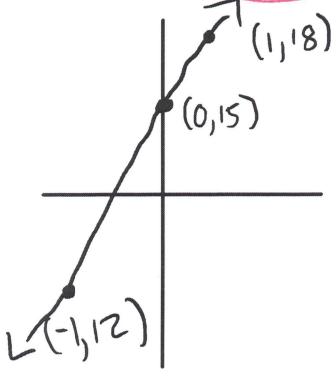


② $3x$

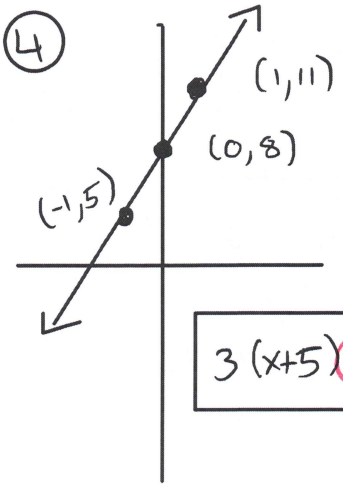


shift left

③ $3(x+5)$



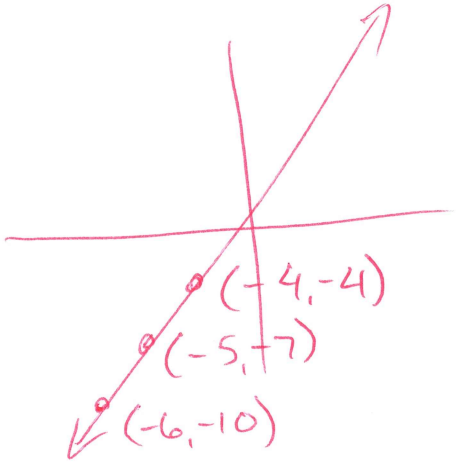
④



$3(x+5)-7$

shift down

vertical stretch

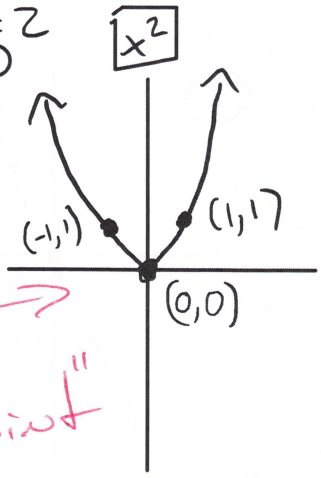


+2

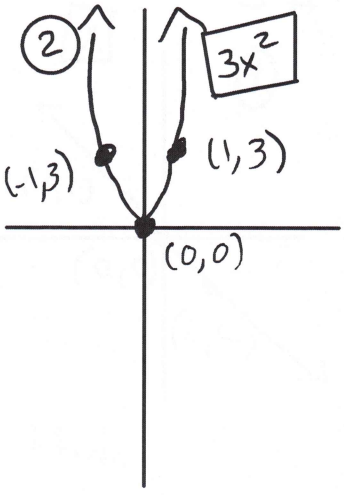
Jade Guenigault
writing project #2
Math 1340

(8) $g(x) = 3(x+5)^2 - 7$

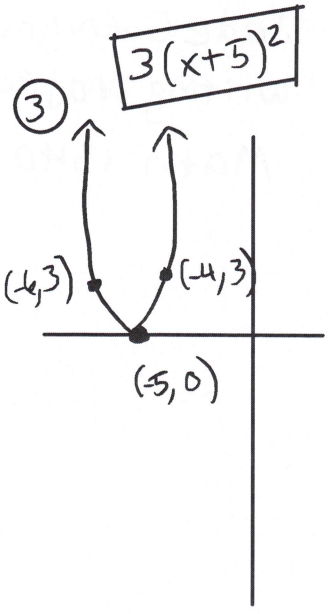
① x^2



② $3x^2$

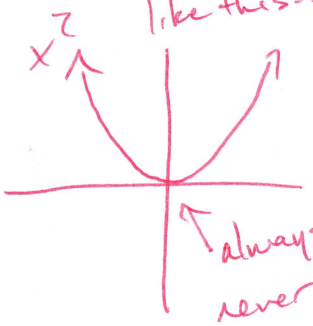


③ $3(x+5)^2$

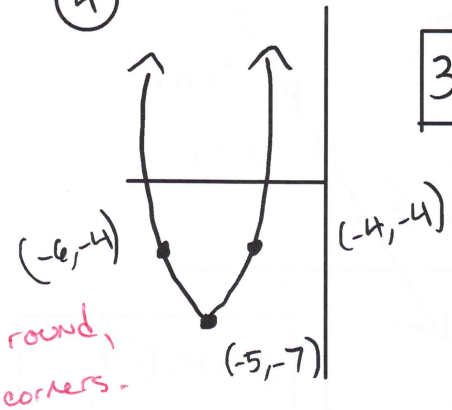


There is no "point" on this curve.

④



$3(x+5)^2 - 7$



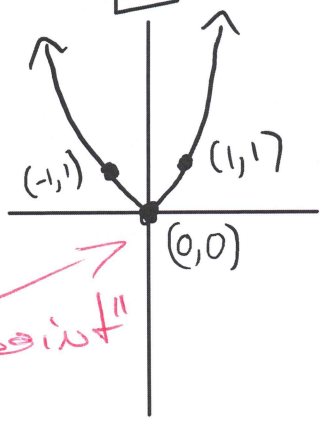
left 5
down 7
vertical stretch

+45

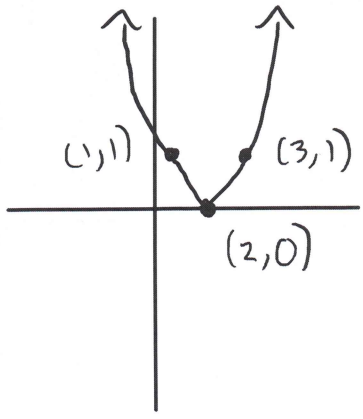
Jade Guenigault
writing project #2
Math 1340

⑨ $g(x) = x^2 - 4x - 7 = (x-2)^2 - 11$

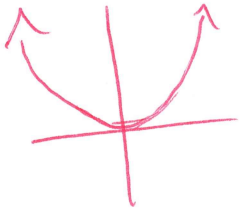
① x^2



② $(x-2)^2$

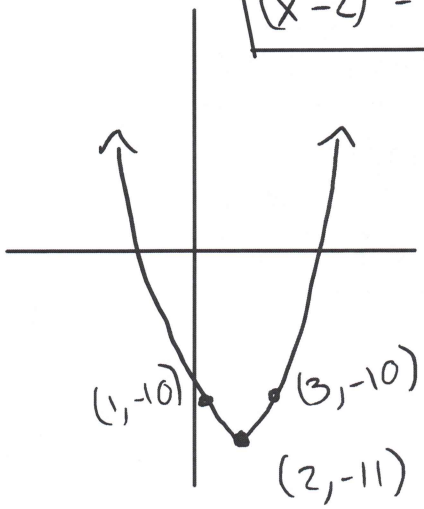


No "point"



It's a curve

③ $(x-2)^2 - 11$



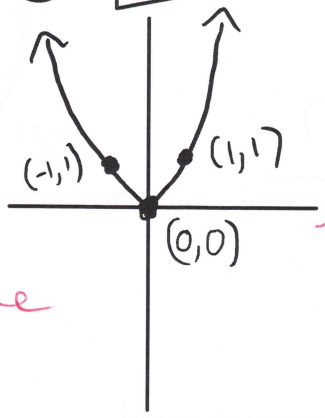
+4.5

Jade Guenigault
writing project #2
Math 1340

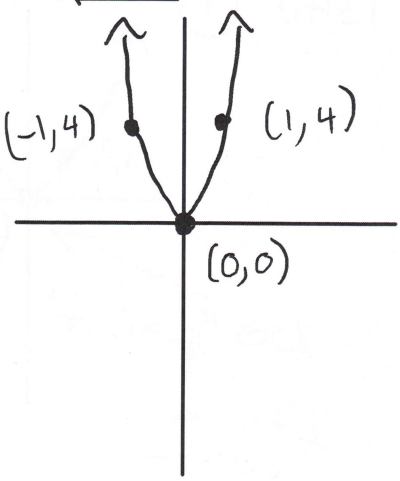
(10) $g(x) = 4x^2 + 5x + 17$

Need to complete the square

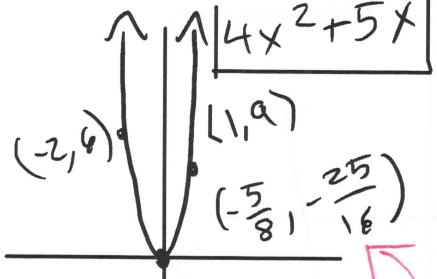
(1) x^2



(2) $4x^2$

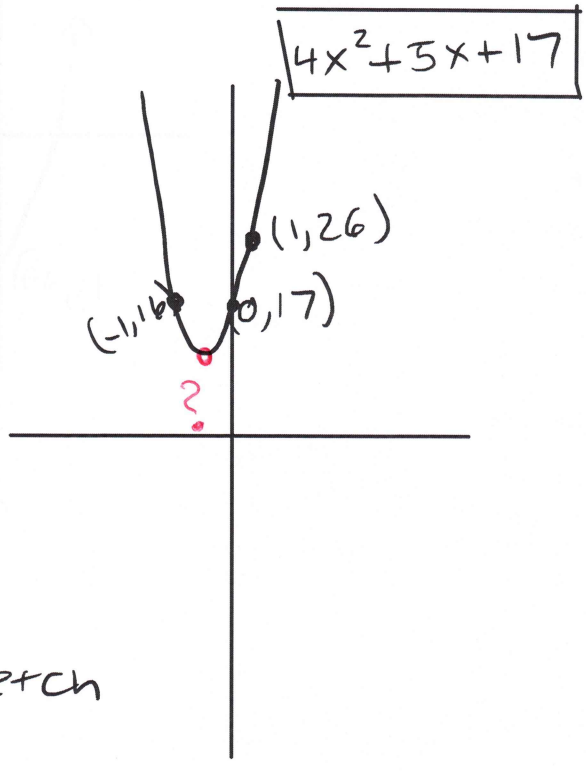


$4x^2 + 5x$



This is where things went wrong.

$4x^2 + 5x + 17$



left .625
up 15.438
vertical stretch

+2